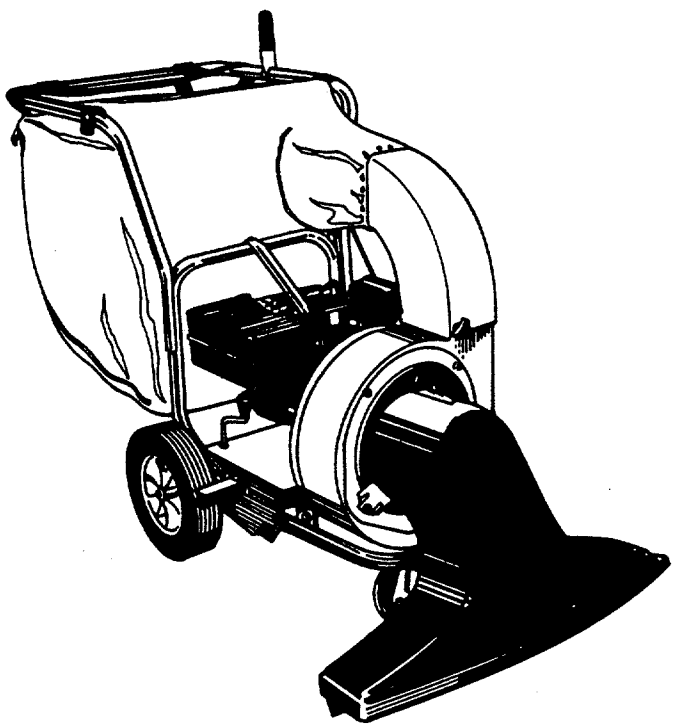
Cub Cadet®

Power Equipment

Owner's Manual



5 H.P. VACUUM/BLOWER

Model Number

685

(249-685-100)

Important:

Read Safety Rules and Instructions Carefully

Thank you for purchasing an American-built product.

CUB CADET CORPORATION • P.O. BOX 360930 • CLEVELAND, OHIO 44136

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Instructions given with this symbol are for personal safety. Be sure to follow them.

WARNING

This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, bursh-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code.) Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your authorized service dealer.

IMPORTANT

It is suggested that this manual be read in its entirety before attempting to assemble or operate. Keep this manual in a safe place for future reference and for ordering replacement parts.

This unit is shipped WITHOUT GASOLINE or OIL. After assembly, see separate engine manual for proper fuel and engine oil recommendations.

SAFE OPERATION PRACTICES FOR POWER VACUUMS

Read this operating and service instructing manual carefully. Be thoroughly familiar with the controls and proper use of the power vacuum.

Never allow children to operate this power vaccum.

Keep the area of operation clear of all persons, particularly small children and pets.

Check fuel before starting engine. Do not fill fuel tank indoors, when engine is running, or while engine is hot. Wipe off any spilled fuel before starting engine.

Do not change engine governor settings.

Do not put hands near rotating parts for any reason.

If the power vacuum should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.

Before cleaning, repairing or inspecting, make certain all moving parts have come to a complete stop. Disconnect spark plug wire and keep wire away from plug to prevent accidental starting. Also keep throttle control lever in the stop position.

If the power vacuum should become blocked with debris at any point, shut engine off and wait until the impeller comes to a complete stop before attempting to remove the obstruction. Disconnect spark plug wire to prevent accidental starting.

10. Check all bolts for tightness at frequent periods.
11. Never store this power vacuum with fuel in the tank. Allow engine to cool before storing in any enclosure.
12. Keep bag and equipment free of debris when not in use.
13. Never operate this power vacuum unless air duct and vacuum bag are properly affixed in their place. Large zippered end of bag must be closed when operating to prevent objects from being blown out.
14. Never empty vacuum bag when engine is running.
15. Never change inlet nozzle or auxiliary hose attachment when engine is running.
16. The manufacturer recommends that the operator wear safety glasses or some other suitable eye protection when operating this machine.
17. Check the vacuum bag frequently for wear and replace when necessary.
18. Never operate as a leaf blower unless impeller guard and guard assembly are properly affixed in their place.
19. Exercise caution whenever operating as a leaf blower. Do Not allow discharge to be pointed in the direction of persons.
20. No one should operate this unit while intoxicated or while taking medication that impairs the senses reactions.

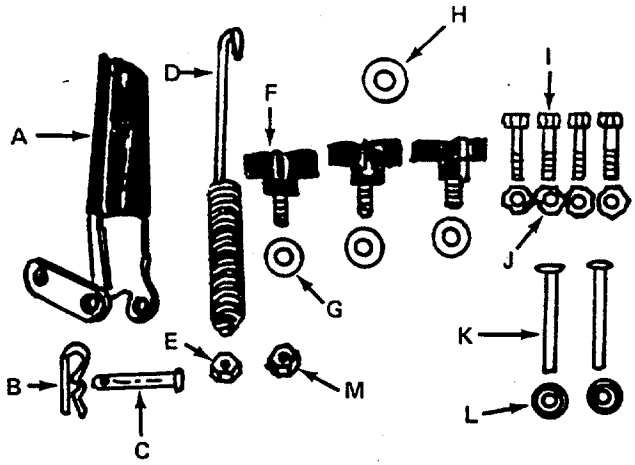


FIGURE 1

ASSEMBLY INSTRUCTIONS

CONTENTS OF HARDWARE PACK
(See Figure 1.)

A	(1)	Clutch Grip Assembly
B	(1)	Hair Pin Cotter
C	(1)	Clevis Pin
D	(1)	Extension Spring
E	(1)	Lock Nut 1/4-20 Thread
F	(3)	Hand Knobs
G	(3)	Belleville Washers
H	(1)	Heavy Flat Washer
I	(4)	Hex Bolts 1/4-20 x 1.75" Long
J	(4)	Hex Lock Nuts 1/4-20 Thread
K	(2)	Stud Pins
L	(2)	Push-on Speed Nuts
M	(1)	Hex Jam Nut 1/4-20 Thread (Not Shown)

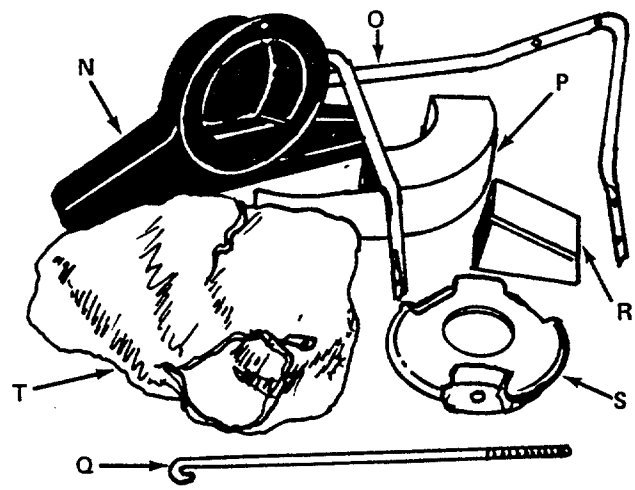


FIGURE 2

LOOSE PARTS IN CARTON
(See Figure 2.)

N	(1)	Nozzle
O	(1)	Upper Handle
P	(1)	Air Duct Assembly
Q	(1)	Clutch Rod
R	(1)	Directional Discharge Assembly
S	(1)	Impeller Guard
T	(1)	Bag

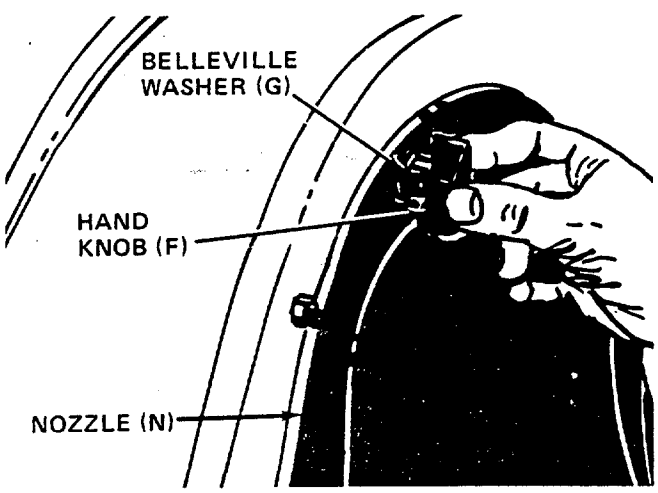


FIGURE 3

1. Place nozzle (N) in position on front of housing so that it rests in flanges. Secure with one hand knob (F) and belleville washer (G). See figure 3.

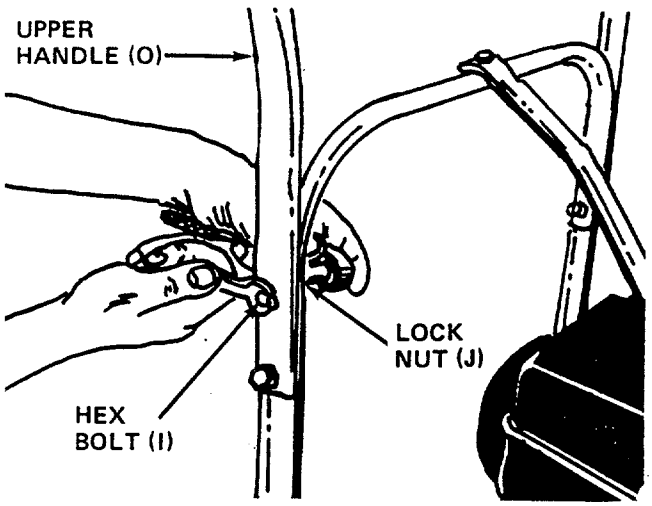


FIGURE 4

2. Place the upper handle (O) in position over lower handle. Fasten with four hex bolts (I) and lock nuts (J) provided. See figure 4. Two 7/16" wrenches are required.

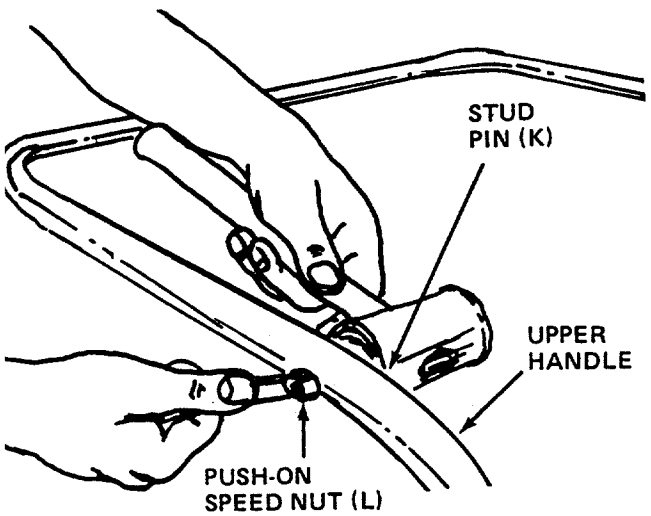


FIGURE 5

3. Place the stud pins (K) in holes in upper handle (head of pins go to the inside of handle). Secure pins with push-on speed nuts (L) by holding speed nut with box wrench and tapping pin with hammer. See figure 5.

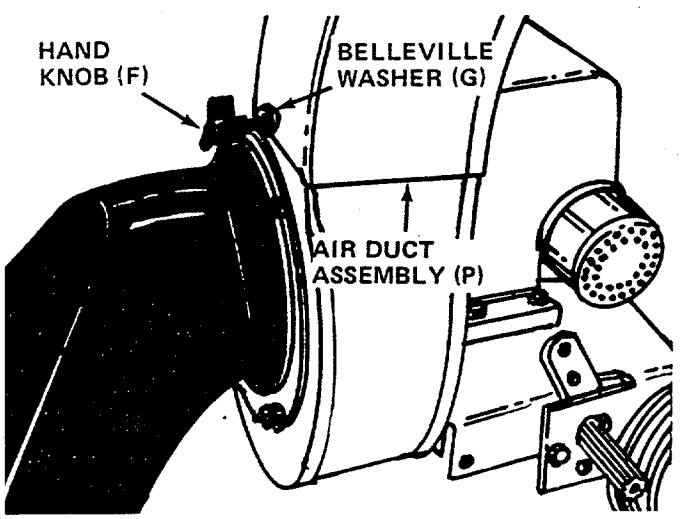


FIGURE 6

4. Place air duct assembly (P) over opening on top of housing. Secure with two hand knobs (F) and belleville washers (G). See figure 6.

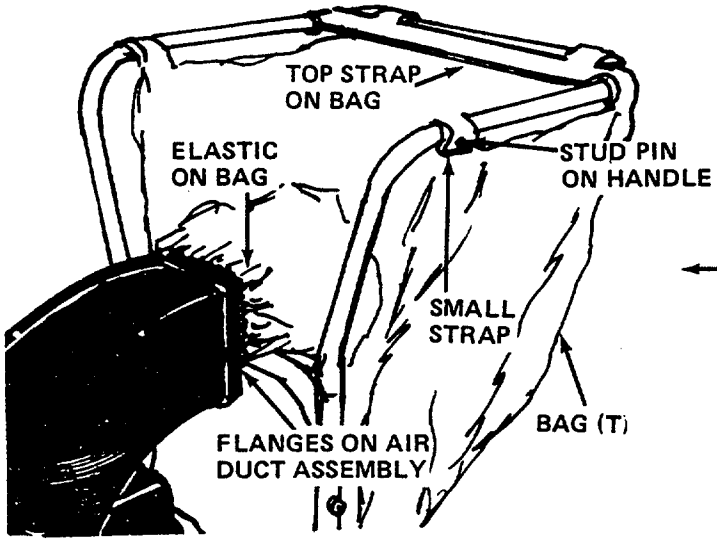


FIGURE 7

5. Assemble the bag by slipping the top straps on bag (T) over upper handle. Hook two small straps over stud pins on handle. Slip elastic opening of bag over air duct assembly. See figure 7.

NOTE

Be certain elastic on bag is placed over the flanges on air duct assembly.

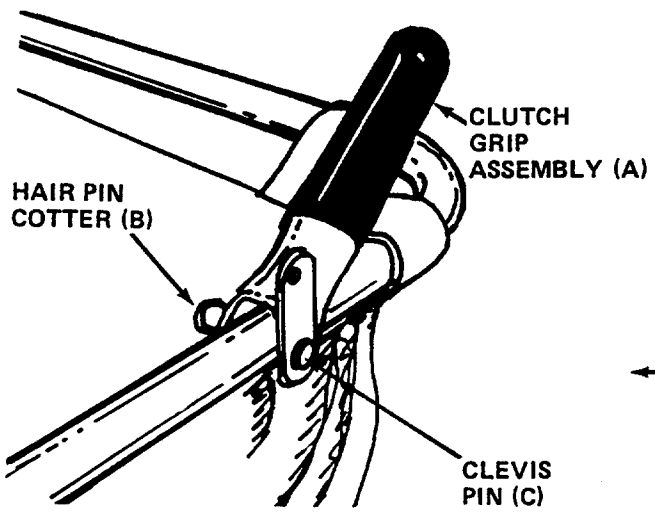


FIGURE 8

6. Assemble the clutch grip (A) to the left hand side of upper handle. Secure in place with clevis pin (C) and hair pin cotter (B). See figure 8. Head of clevis pin should be to the outside of handle.

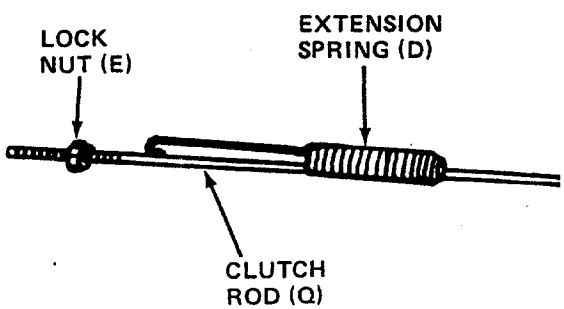


FIGURE 9

7. Slide the extension spring (D) onto clutch rod (Q) as shown in figure 9. Thread lock nut (E) onto clutch rod approximately 2 1/2 inches.

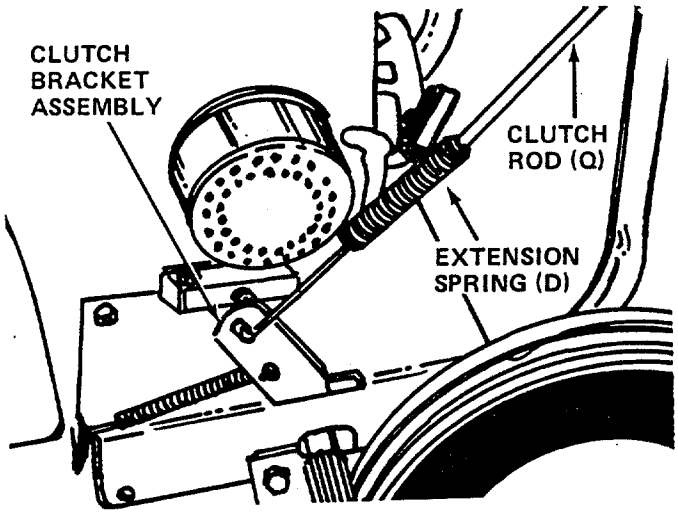


FIGURE 10

8. Hook top (hooked end) of clutch rod into clutch grip. Hook spring into clutch bracket assembly. See figure 10. Spring should not have any slack. Adjust nut so that when the clutch grip is all the way up, there is no slack in the spring.

9. Thread hex jam nut (M) onto clutch rod and lock against the lock nut.

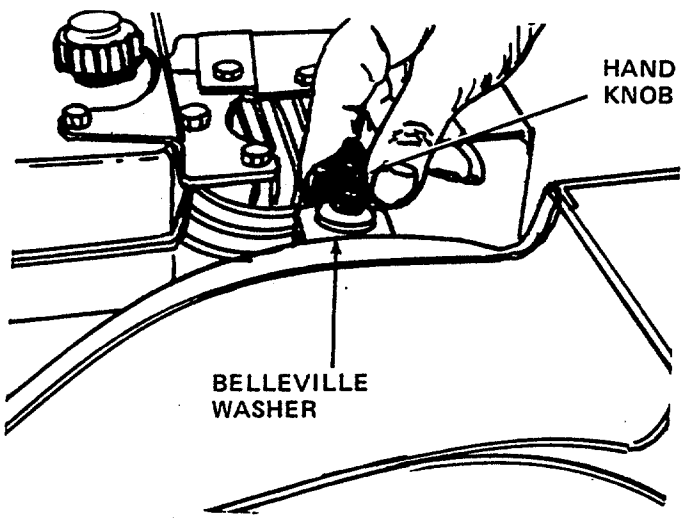


FIGURE 11

WARNING

Engine must be stopped (off) and spark plug wire disconnected.

ASSEMBLY INSTRUCTIONS

To Convert from a Vacuum to a Leaf Blower.

1. Remove the bag.

2. Remove the air duct assembly by removing two hand knobs and belleville washers.

3. Remove the nozzle by removing one hand knob and belleville washer.

4. Remove the hand knob and belleville washer holding the housing to engine brace. See figure 11.

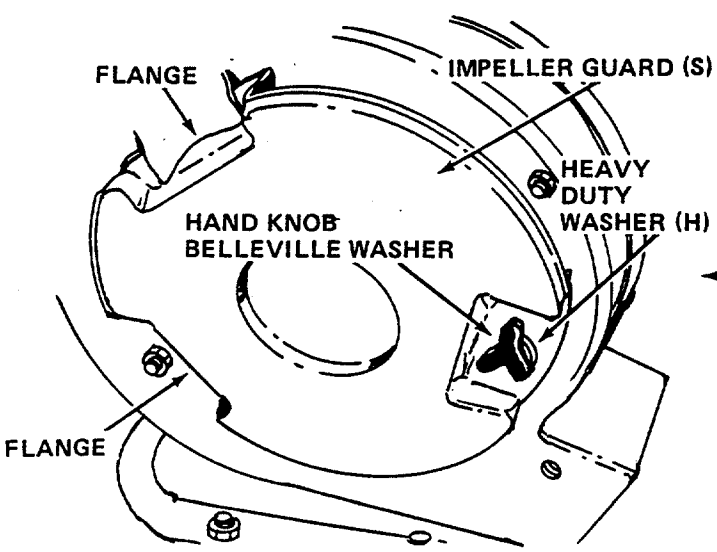


FIGURE 12

5. Lift up and out on the housing and rotate it 105° clockwise. Chute opening should be to the right hand side when viewed from the front of unit. See figure 12.

6. Place the impeller guard (S) into flanges on front of housing. Line up hole in screen with hole on housing. Secure with one hand knob, belleville washer and heavy flat washer (H). See figure 12.

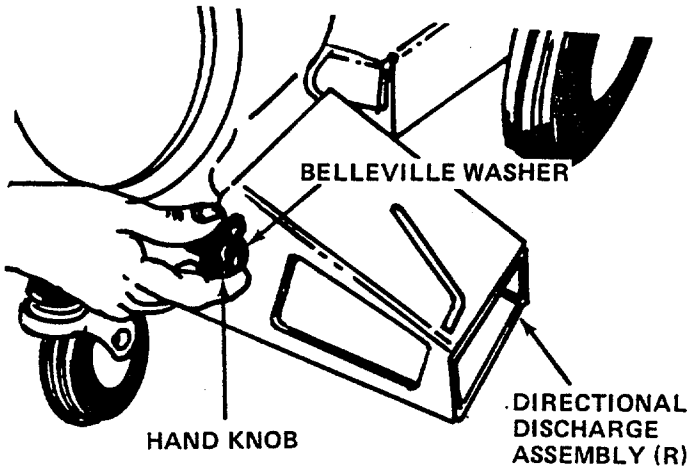


FIGURE 13

7. Place the directional discharge assembly (R) over chute opening. Secure with two hand knobs and belleville washers. See figure 13.

CAUTION
REVOLVING BLADES-KEEP HANDS AWAY FROM ALL OPENINGS
3450

OPERATION

BEFORE STARTING ENGINE

After the engine has been properly fueled and oiled (refer to engine operating and maintenance instructions), start engine following the instructions below.

PRE-START PREPARATIONS

Service engine with gas and oil. See engine manual packed with vacuum for complete instructions for care and maintenance of engine. READ DIRECTIONS CAREFULLY.

1. Move choke lever on engine to CHOKE position.

NOTE

A warm engine may not require choking.

2. Move throttle control lever on engine to FAST position.
3. Crank engine. Pull recoil with quick firm pull. Do not pull out so far the rope stops with a jerk as this will cause rope failure. Do not allow rope and handle to snap back into place.
4. After two or three full firm pulls on recoil (or as soon as engine fires), move speed control to RUN position.
5. To engage the drive mechanism, squeeze the clutch grip against the upper handle. Release the clutch grip to stop the forward motion.

TO STOP ENGINE

1. To stop engine, move throttle control lever to OFF position.
2. Disconnect spark plug wire and ground to prevent accidental starting while equipment is unattended.

Operate a new engine at intermediate speeds and light load for the first few hours as you would a new automotive engine.

IMPORTANT

The vacuum bag may have an air escape located on the upper right hand side. See figure 14. The air escape can be opened if the vacuum is operated in wet, sandy or muddy conditions.

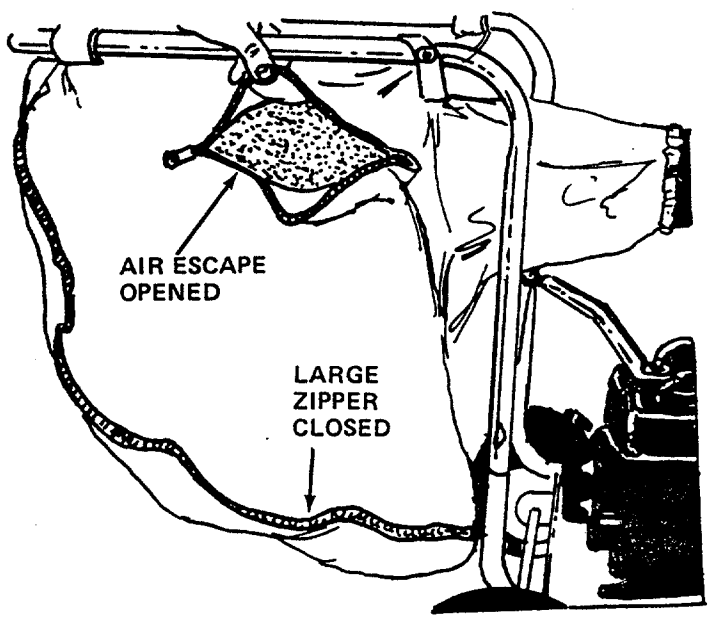


FIGURE 14

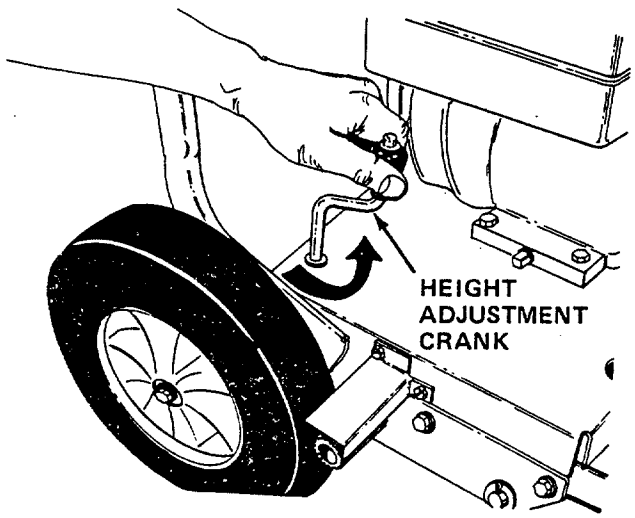
ADJUSTMENTS

CAUTION

Do not at any time make any adjustment to the unit without first stopping engine and disconnecting spark plug wire.

IEIGHT ADJUSTMENT

he height adjustment crank is located on the right and side of the vacuum. See figure 14. Turn the crank lockwise to raise the nozzle. Turn the crank counter-lockwise to lower.



IGURE 14.

ARBURETOR ADJUSTMENT

WARNING

If any adjustments are made to the engine while the engine is running (e.g. carburetor), disengage all clutches. Keep clear of all moving parts. Be careful of heated surfaces and muffler.

f carburetor needs adjustment to start or for operation, see "Carburetor Adjustment" section of engine anual.

:LUTCH ROD ADJUSTMENT

'o adjust the clutch rod, refer to step number 8 nder assembly instructions.

.UBRICATION

Wheels - Rear wheels are provided with oil lite earings. Place a few drops of SAE 30 oil on each earing once a season.

Gear Box - The gear box is lubricated with 2 ounces f High Temp. (450° F.) grease. Order part number '37-0133. Periodically check lubricant level by removing the two self-tapping screws on the gear box over and lifting off the cover. Do not change grease; imply add if necessary.

MAINTENANCE

WARNING

Disconnect spark plug wire and ground it against the engine before performing any repairs or maintenance.

BELT REPLACEMENT

1. Remove the nozzle or impeller guard from front of blower housing.
2. Remove hex bolt and lock washer from center of impeller. See figure 15. A 9/16" socket wrench with extension is needed.

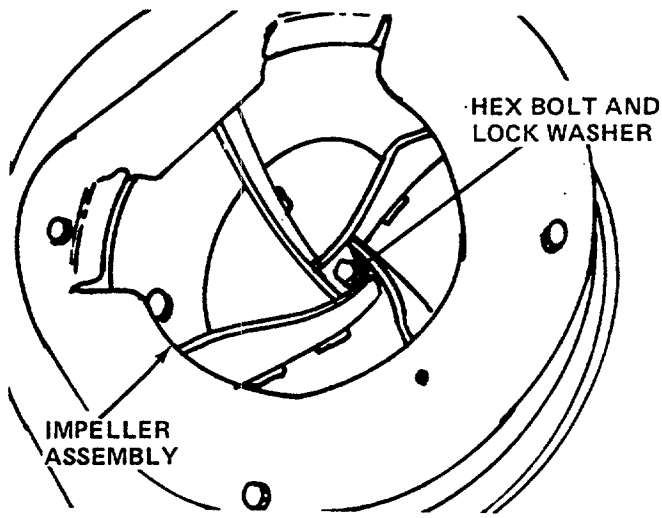


FIGURE 15

3. Remove hand knob and belleville washer from top of housing.
4. Remove two self-tapping screws which hold the belt guard. See figure 16. A 3/8" wrench is required. Lift off belt guard.

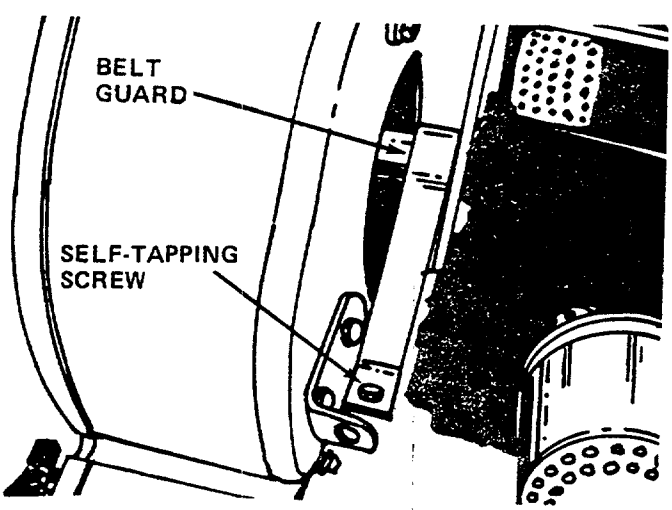


FIGURE 16

5. Slide belt off the impeller pulley. Slide housing and impeller off engine crankshaft. Be careful to not lose square key. See figure 17.

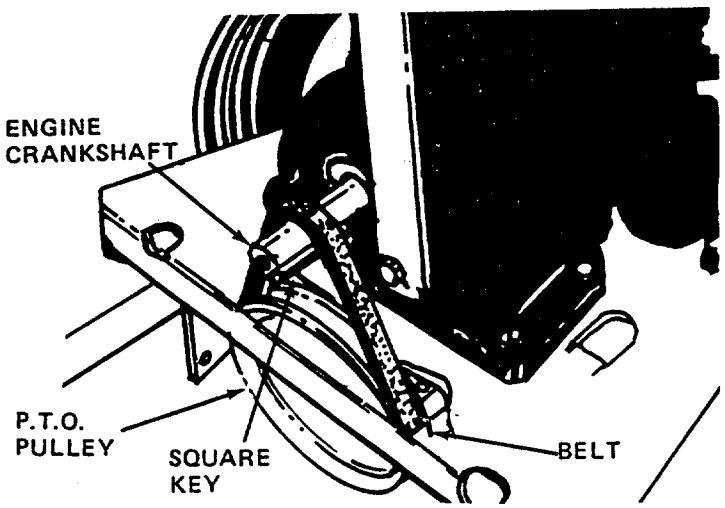


FIGURE 17

6. Slide impeller and blower housing assemblies off crankshaft.
7. Remove belt from P.T.O. pulley and install new belt. See figure 17.

NOTE

When reassembling the new belt, the aid of another person will be helpful.

8. Turn the crankshaft until the key way on shaft is directly on top. While holding housing assembly and impeller assembly, line up the key way on the pulley with the key on the crankshaft, and slide housing and impeller assemblies onto crankshaft.
9. Secure impeller to crankshaft with hex bolt and lock washer, removed in step 2. Tighten securely.
10. Slip belt over impeller pulley and reassemble the belt guard.
11. Secure blower housing with hand knob and washer.
12. Reassemble the nozzle or impeller guard.

OFF-SEASON STORAGE

The following steps should be taken to prepare the unit for storage.

1. Clean the engine and the entire unit thoroughly.
2. Refer to engine manual for correct engine storage instructions.
3. Store unit in a clean, dry area.

NOTE

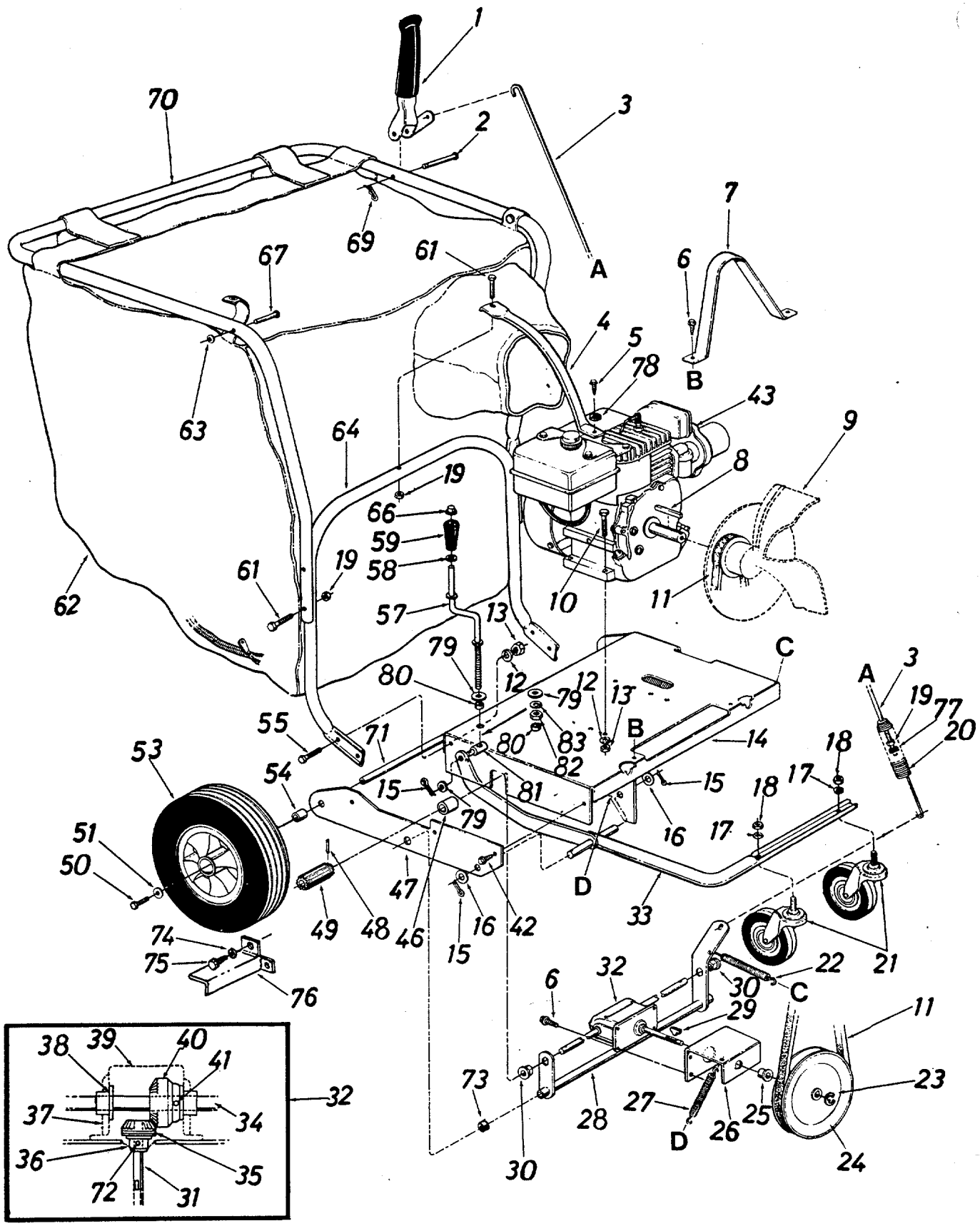
When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rustproof the equipment. Using a light oil or silicone, coat the equipment, especially springs and bearings.

TROUBLE SHOOTING CHART

PROBLEM	CAUSE	REMEDY
1. Excessive vibration.	A. Bent crankshaft. B. Vane plate out of balance.	A. Replace crankshaft (should be done by an authorized service dealer). B. Replace vane plate.
2. Height adjustment slips out of lockout position.	Handle bent.	Replace index handle and index plate.
3. Engine fails to start.	A. Check fuel tank for gas. B. Spark plug lead wire disconnected. C. Faulty spark plug.	A. Fill tank if empty. B. Connect lead wire. C. Clean, adjust gap or replace. See engine manual.
4. Hard starting or loss of power.	A. Spark plug wire loose. B. Dirty air cleaner.	A. Connect and tighten spark plug wire. B. Clean air cleaner as described in engine manual.
5. Engine overheats.	A. Carburetor not adjusted properly. B. Air flow restricted. C. Engine oil level low.	A. Adjust carburetor. See engine manual. B. Remove blower housing on engine and clean as described in the engine manual. C. Fill crankcase with the proper oil.

NOTE: For repairs beyond the minor adjustments listed above, please contact your authorized service dealer.

Model 685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Model 685

PARTS LIST FOR MODEL 685 POWER VACUUM

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	05778		Clutch Grip Ass'y.	
2	711-0679		Clevis Pin .375" Dia. x 1.88"	
3	747-0154		Clutch Rod 32" Lg.	
4	749-0787		Handle Brace (Painted)	N
	749-0482		Handle Brace (Chrome)	
5	----------		Part of Engine	
6	710-0892		Hex L-Wash. Hd. AB Tap Scr. 1/4" x .62" Lg.	
7	14558		Belt Guard	
8	714-0114		Square Key 1/4" x 2.0" Lg.	
9	14557		Air Vane Plate Ass'y. w/pulley	
10	710-0442		Hex Bolt 5/16-18 x 1.5" Lg.*	
11	754-0219		"V"-Belt	
12	736-0119		L.-Wash. 5/16" I.D.*	
13	712-0267		Hex Nut 5/16-18 Thd.*	
14	16454-498		Engine Mounting Frame Ass'y.	
15	714-0115		Cotter Pin 1/8" Dia. x 1.0" Lg.*	
16	736-0187		Fl.-Wash. .63" I.D. x 1.25" O.D.	
17	736-0921		L.-Wash. 1/2" I.D.*	
18	712-0206		Hex Nut 1/2-13 Thd.*	
19	712-0107		Hex Cent. L.-Nut 1/4-20 Thd.	
20	732-0411		Extension Spring .78" O.D. x .75" Lg.	
21	734-1036		Swivel Caster Wheel 5" Dia. x 1.25"	
22	732-0409		Extension Spring .38" O.D. x 7.50" Lg.	
23	716-0104		Snap "E"-Ring .50" Dia. Shaft	
24	756-0367		"V"-Pulley 5/8" x 6.50" O.D.	
25	748-0142		Flange Bearing .502" I.D.	
26	14570		Gear Box Mounting Bracket	
27	732-0376		Extension Spring .75" O.D. x 3.28" Lg.	
28	14565		Clutch Bracket Ass'y.	
29	714-0229		#2 Woodruff Key 3/32" Dia. x .81" Lg.	
30	748-0227		Hex Flange Bearing Bronze .625" I.D.	
31	738-0516		Pinion Shaft .50" Dia. x 5.0"	
32	717-0493		Gear Box Ass'y. Comp.	
33	16273		Caster Arm Ass'y.	
34	08348		Drive Shaft .624" Dia. x 22.75" Lg.	
35	748-0136		Bevel Gear .50" I.D. x 14 Teeth	
36	748-0108		Flange Bearing .503" I.D.	
37	08189		Gear Box	
38	748-0110		Flange Bearing .630" I.D.	
39	08187		Gear Box Cover	
40	748-0135		Bevel Gear .62" I.D. x 28 Teeth	
41	715-0246		Spring Pin Spiral 3/16" Dia. x 1.25" Lg.	
42	710-0726		Hex Wash. Hd. "AB" Tap Scr. 5/16" x .75" Lg.	
43			Engine	
46	748-0201		Spacer .63 I.D. x .88" O.D. x .56" Lg.	
47	14530--499		Side Plate	
48	715-0247		Spring Pin Spiral 3/16" Dia. x 1.0" Lg.	
49	748-0288		Drive Pinion	
50	710-0170		Hex Locking Bolt 5/16-24 x .62" Lg.	
51	736-0159		Fl.-Wash. .34" I.D. x 87" O.D.	
53	734-1035		Wheel Ass'y. - Comp. 12" x 3" (Incl. Ball Bearings)	
54	750-0194		Spacer .63" I.D. x 1.00" O.D. x .94" Lg.	
55	710-0118		Hex Bolt 5/16-18 x .75" Lg.*	
57	747-0665		Height Adjustment Crank	
58	736-0117		Fl.-Wash. 138" I.D. x .62" O.D.	
59	720-0171		Crank Knob	
61	710-0136		Hex Bolt 1/4-20 x 1.75" Lg.	
62	764-0162A		Vacuum Bag - Felt	N
63	1539-019		Push Speed Nut .25" Dia. Stud	
64	749-0785		Lower Handle (Painted)	N
	749-0481		Lower Handle (Chrome)	
66	726-0100		Push Nut 3/8" Dia.	
67	711-0737		Stud Pin .250" Dia. x 1.75"	
69	714-0145		Internal Cotter Pin 3/8" Dia.	
70	749-0786		Upper Handle (Painted)	N
	749-0480		Upper Handle (Chrome)	
71	738-0185		Rear Axle .624" Dia. x 24.37"	
72	715-0249		Spring Roll Pin 5/32" Dia. x 1.12	
73	750-0142		Spacer .82" I.D. x 1.00" O.D. x .305 Lg.	
74	736-0175		L.-Wash. .265" I.D.	
75	710-0352		Hex Self Tap Scr. 1/4" x 3/8" Lg.	
76	14556		R.H. Pinion Guard	
	14555		L.H. Pinion Guard (Not Shown)	
77	712-0298		Hex Jam Nut 1/4-20 Thd.	
78	736-0242		Belleville Washer	
79	736-0300		Fl.-Wash. .35" I.D. x .87" O.D.	
80	750-0528		Spacer .38" I.D. x .50" O.D. x .180" Lg.	
81	21989		Ferrule 3/8-16 x .38" Dia.	
82	712-0798		Hex Nut 3/8-16 Thd.*	
83	736-0169		L.-Wash. 3/8" I.D.	

For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

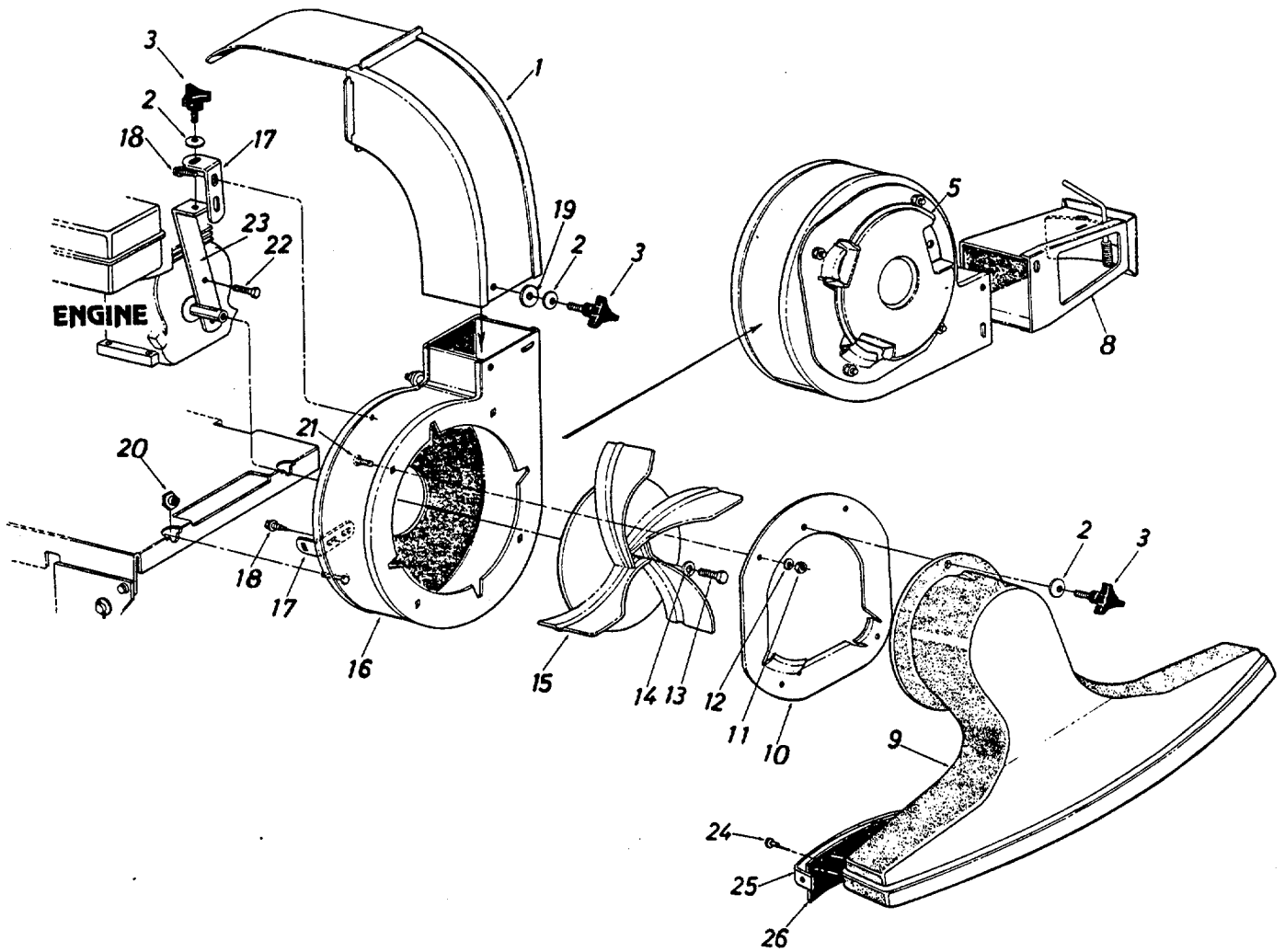
499-Beige 498-Yellow

If color or finish is important when ordering parts, use the appropriate color code shown above [i.e. (part no.)—499 for Beige Finish].

NOTE

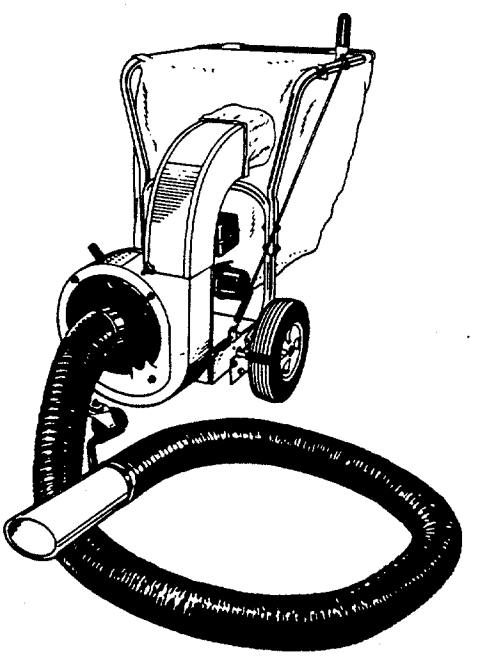
Specifications subject to change without notice or obligation.

Model 685



PARTS LIST FOR MODEL 685 POWER VACUUM

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	14532--499		Air Duct Assembly	
2	736-0242		Belleville Wash. 34" I.D. x .87" O.D.	
3	720-0170		3-Arm Thumb Scr. 5/16-18 x .75" Lg.	
4	749-0501		Tow Bar Half	
5	731-0608		Impeller Guard	
8	14479		Directional Discharge Ass'y.	
9	14562		Nozzle Ass'y.	
10	14563		Nozzle Plate Ass'y.	
11	712-0267		Hex Nut 5/16-18 Thd.*	
12	736-0119		L.-Wash. 5/16" I.D.	
13	710-0191		Hex Bolt 3/8-24 x 1.25" Lg.*	
14	736-0217		L.-Wash. 3/8" I.D. H.D.	
15	14557		Air Vane Plate Ass'y. w/pulley	
16	14496--499		Blower Housing Complete	
17	14541		Right Angle Bracket	
18	710-0600		Hex Self-Tap Scr. 5/16-18 x .50" Lg.	
19	736-0231		Fl.-Wash. 5/16" I.D.	
20	711-0758		Hex Shoulder Nut .50 I.D.	
21	710-0260		Carriage Bolt 5/16-18 x .62" Lg.*	
22	710-0627		Hex Locking Bolt 5/16-24 x .75" Lg.	
23	14539		Housing - Engine Brace Ass'y.	
24	728-0173		Pop Rivet (5-Required)	
25	14569		Wiper Retaining Strip	
26	735-0214		Nozzle Wiper	



Hose Attachment Kit Model 290-204-100 is available as optional equipment.

Cub Cadet Corporation's Promise To You

We promise you, the first user purchaser, that we will replace or repair any part or parts of your new outdoor power product which is defective in material or workmanship without charge for either parts or labor during the first year following delivery to you.

We also promise you, the first user purchaser, a second year warranty on the engine and drive train of your new *Cub Cadet* Tractor, Lawn Tractor or Riding Tractor.

What the second year covers

(A) It will cover the engine internal parts contained within the engine shielding except for points, condensers, spark plugs, air filters, oil filters, and routine maintenance parts.

(B) It will cover the tractor drive train including drive shafts, drive shaft clutch, all parts enclosed by transmission housing, and axle housing, axle shafts, final drives, spindle pulleys, spindle bearings, and electric PTO clutch.

Home Maintenance Products: We promise you, the first user purchaser, a 1 year warranty on all Home Maintenance Products. This will cover Push Mowers, Self Propelled Mowers, Utility Trailers, Walk Behind Tillers, Chore Performers and Snow Throwers.

The Tecumseh engine, used on Walk Behind Snow Throwers, will carry a 2 year warranty on the engine only.

Cub Cadet Attachments:

We promise you, the first user purchaser, that we will replace or repair any part or parts which are defective in material or workmanship without charge for parts or labor during the first year following delivery to you. This will cover all *Cub Cadet* attachments. This does not include Approved Allied Equipment which is sold and warranted directly by the manufacturer.

Obtaining Warranty Service Through *Cub Cadet* Dealers

Warranty repairs will be made by your selling *Cub Cadet* dealer or any *Cub Cadet* dealer authorized to sell the type of equipment involved during the normal working hours of the dealer service department. You, the purchaser, are responsible for transportation of the equipment to the dealership for warranty service or for any service call expense, along with any overtime labor you request.

Replacement Parts Warranty

Cub Cadet parts which are furnished and installed under this warranty are themselves within the coverage of this warranty for the duration of the original warranty period or for ninety days after installation, whichever period shall expire last.

Cub Cadet
Power Equipment

What is not Covered

Tires and tubes are not covered by this warranty, but are warranted by their manufacturer. Regular maintenance replacement items such as spark plugs, ignition points, condensers, belts, cutting parts, filters and lubricants, and maintenance adjustments such as fuel system cleaning, engine tune-up, brake and/or clutch inspection or adjustment, when such replacement or adjustments are made as part of normal maintenance service are excluded from coverage. Any non-Cub Cadet product which you may have installed in or upon the product is also excluded.

No person is authorized to give any other warranty or to assume any other liabilities on the Company's behalf unless made or assumed in writing by the Company, and no person is authorized to give any warranties or to assume any liabilities on the seller's behalf unless made or assumed in writing by the seller.

Limitations On Our Responsibility

Please carefully note that this is a two-way agreement. We promise to make free repairs or replacements as stated, but you agree, that except for our obligation to make good on this promise, we shall not be responsible for any expenses or inconvenience which you might incur or experience with respect to our product, nor shall we be liable for defects, damage, or failures caused by unauthorized alterations, unreasonable use, accident or abuse, including failure to provide reasonable and necessary maintenance, after our product has been delivered to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Personal Use

The foregoing paragraphs constitute *Cub Cadet* Corporation's entire warranty with respect to any product purchased and used for personal, family, or household purposes as distinguished from commercial usage.

Commercial Use:

All *Cub Cadet* products will be warranted against defective parts or workmanship. This is for *Cub Cadet* Tractor, Attachments and Home Maintenance products and for one year only.

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